

# Montana Department of Transportation PO Box 201001 Helena, MT 59620-1001

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# Memorandum

To: Distribution

Mark A. Goodman, P.E. Hydraulics Engineer

May 18, 2005

Subject: Guidelines for Hydraulic Report Data as Requested by the DFWP

The hydraulic data requested by the DFWP as listed in our 4/5/05 memorandum is generally intended for bridge crossings although some level of this information is also developed during the design process for culverts. Most of this data is routinely collected during the survey phase and further developed with hydrologic/hydraulic models during the course of the normal design process.

Since distribution of this memo some additional questions have arisen regarding the extent to which this data is to be developed for crossings other than bridges.

Since the MDT is governed by FHWA policy set forth in 23 CFR 650; Location and Hydraulic Design of Encroachments on Floodplains, it is prudent to follow these guidelines during project development and design, specifically:

### SECTION. 650.115 DESIGN STANDARDS:

(a) The design selected for an encroachment shall be supported by analysis of design alternatives with consideration given to capital costs and risks, and to other economic, engineering, social and environmental concerns. (1) Consideration of capital costs and risks shall include, as appropriate, a risk analysis or assessment.

## SECTION 650.117 CONTENT OF DESIGN STUDIES:

(a) The detail of studies shall be commensurate with the risk associated with the encroachment and with other economic, engineering, social or environmental concerns.

Therefore, it may not be necessary to develop all of this data for minimum sized culverts. As the risks and capital costs become greater, the level of hydraulic analysis will increase. This approach is no different than what we do now and is consistent with our FHWA Federal-Aid Policy Guide for Hydraulic Design.

Through the project nomination, scoping and design development process items of concern will be documented and the amount of hydraulic survey and subsequently the degree of hydraulic design required will be largely determined. Further evaluation of sitespecific constraints resulting from field reviews, talking to landowners, MDT Maintenance and County representatives, in addition to evaluation of resource concerns in consultation with MDT Environmental Services will help guide the development of the design process.

It is not possible to determine a definitive list of issues and design requirements ahead of time as each project and at times each crossing will pose slightly different problems and design challenges.

As previously stated the majority of this data is already being developed and needs to be appropriately documented in Hydraulic Reports using the proper application of engineering principles and practice along with sound engineering judgment.

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